REMARKS

I. INTRODUCTION

Claim 10 has been amended. Accordingly, claims 1 and 3-10 remain pending in this application. Applicants hereby respectfully request reconsideration of the application and withdrawal of the rejection and objections in light of the arguments to appear hereinafter.

II. CLAIM OBJECTION

Claim 10 stands objected to because of informalities as specified in the Final Office Action. Applicants respectfully contend that the objections have been overcome through appropriate amendment. Withdrawal of the objection is hereby respectfully requested.

III. REJECTION OF CLAIMS 1 AND 3-9 UNDER 35 U.S.C. § 103(A)

Claims 1 and 3-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,201,930 to Inagaki et al ("Inagaki"), in view of U.S. Patent 6,433,455 to Kometani et al ("Kometani"). Applicants respectfully traverse this rejection in light of the following arguments.

One of the standards of nonobviousness under 35 U.S.C. § 103 is whether one of ordinary skill in the art would have a reasonable likelihood of success in arriving at the invention using the methods disclosed by the references. In Paragraph 5 of the Final Office Action, the Examiner states that it would have been obvious to include in the leading side a plurality of portions in an axial direction, as taught by the combination of Inagaki and Kometani for the purpose of increasing output at low speed. Applicants respectfully disagree.

Simply modifying Inagaki as proposed would destroy that invention, namely, reducing magnetic noise. The rotor tooth of Inagaki was carefully crafted utilizing sophisticated mathematical techniques. These techniques included the analysis of a second-order trigonometric equation for the magnetic flux produced by the generator and the use of Fourier transforms to model a waveform to cancel the electromagnetic noise, where the new waveform has the same frequency, but with a180-degree phase shift, as the waveform causing electromagnetic noise [Inagaki, Col. 3, lines 5-16, lines 32-40]. As a result of this complex mathematical modeling, Inagaki derives an asymmetric, irregular trapezoid, where the narrow end of the tooth is offset from a vertical axis by a narrow range of 2 mm-6 mm,

which corresponds to a slot pitch of 0.2-0.7 [Col. 4, lines 37-42; Claim 1, lines 20-21; Figure 7].

Because of the complex mathematical techniques involved in creating an optimal, extremely precise geometric shape for a rotor tooth, a person of ordinary skill in the art would not have a reasonable expectation of success in inventing an effective rotor tooth by merely importing the multi-segmented leading edge from Kometani.. For example only, a rotor tooth under Inagaki where the narrow end of the tooth is offset from a vertical axis by 1 mm[1] or by 7 mm would not effectively cancel magnetic noise.[2] In other words, Inagaki teaches that the smallest changes in the offset of the narrow end of the rotor tooth from a vertical axis outside of the 2 mm-6 mm range will not work for the intended purpose. Applicants respectfully submit that the proposed modifications to Inagaki may even destroy its noise cancellation effect. One of ordinary skill in the art would not be motivated to modify Inagaki as proposed if such a modification would destroy the invention of Inagaki.

No reasonable likelihood of success. The addition of the Kometani reference adds yet another layer of mathematical complexity. Kometani also utilizes sophisticated mathematical techniques to create the symmetric rotor tooth of the '455 patent. Kometani analyzes the current flow out of the generator when the generator is at its saturation point [Col. 1, lines 56-67; Col. 2, lines 1-10]. Kometani also analyzes the voltage produced by the generator at extreme low speed revolution [Col. 2, lines 40-50]. Kometani concludes that to maximize the magnetic flux out of the generator while minimizing noise, <u>the rotor tooth should be designed so that it is **substantially symmetric**</u> with respect to a vertical axis and that the leading and trailing sides should have skew angles designed such that the bottom 2/3 of the tooth is supplied with at least 95% of the total magnetic flux generated [Col. 5 , lines 15-21, lines 26-38; Figure 2; Claim 2]. There is simply no support to believe that taking only half [i.e., the leading side] of the tooth profile of Kometani and using it to modify Inagaki would allow realization of the benefit described in Kometani [i.e., increased output at low speed]. Finally, because the Inagaki and Kometani design schemes are not interchangeable, a person of ordinary skill in the art would not have any reasonable expectation of success in achieving

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[1] For a slot pitch of 8.5 mm.

[2] "Particularly, in the range of D = 2 to 6 mm, that is, in the range where the ratio of D to the slot pitch = 8.5 mm is in the range of 0.2 to 0.7, the output showed practically no decrease and the exciting force was decreased greatly thus showing that a remarkable effect is obtainable in this particular range," Col. 4, lines 37-42.

increased output at low speeds, as contended by the Examiner, by combining the Inagaki and Kometani references, as proposed.

Accordingly, for at least the reasons set forth above, Applicant respectfully requests that the rejection of claims 1 and 3-9 be reconsidered and withdrawn.

IV. REJECTION OF CLAIM 10 UNDER 35 U.S.C. § 103(A)

Claim 10 stands rejected under 35 U.S.C. § 103 (a) as being unpatentable over Inagaki in view of Kometani as applied to claim 9 above, and further in view of U.S. Patent 5,122,705 to Kusase et al. Applicants respectfully traverse the rejection.

Claim 10 is a dependent claim which depends upon claim 9, which includes all of the limitations thereof. Thus, for at least the same reasons set forth above, the rejection of claim 10 is submitted to be overcome.

V. CONCLUSION

For the foregoing reasons, all presently pending claims are now believed to be in condition for allowance. Early notice of the same is hereby respectfully requested.

Respectfully submitted,

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By: [signature]

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EXHIBIT A

MARKED-UP COPY OF THE CLAIM

10. (Once Amended) The generator of claim 9 wherein said generator includes seventy-two teeth and six pairs of poles, said multiphase winding is a three-phase winding and wherein said trailing side is disposed at an incline relative to the axial extent of said teeth of said armature, said trailing side extending in parallel with said leading [edge] side of an adjacent pole for a predetermined length.

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